

Garlic Mustard



Background, Life History

Garlic mustard (*Alliaria petiolata*) is a biennial (life cycle requires two years) herb native to Europe and Asia. First recorded in Long Island, N.Y., in 1868, it was likely used by settlers as food or medicine. Today, this plant relies on its prolific seed production for dispersal. The small seed can be transported to new locations in a variety of ways including on vehicles and animals, in mud underfoot, on clothing, and on shoes and shoelaces. The seeds, which can float, are easily carried throughout a watershed.

Garlic mustard is extremely invasive. Found most frequently in forests under partial shade, it also can grow in full shade or sunlight. It prefers soils with an abundance of calcium and does not do well in acidic substrates. The areas most at risk for infestation are disturbed forests and wooded areas adjacent to streams, as well as along trails, parking lots and other places where vegetation has been removed. In Missouri, garlic mustard is more prevalent in counties that are near the Missouri River.

At the end of the first growing season, garlic mustard is a rosette of green, roundish leaves that are about 4 inches off the ground and stay green throughout the winter. In the second year, it has 2- to 3.5-foot tall flowering stems that have a distinctive "S" crook near the base. The leaves are alternate and triangular with the largest near the base. They have large teeth around the margins and are 2 to 3 inches wide. Flowers with four white petals begin to form in April and are clustered near the top of the stem. Flowers continue to be produced in May and June while fruits form lower on the stem. The fruit appears as a narrow, linear 1- to 2.5-inch green pod (silique) and is produced from early summer through early fall. Seed dispersal begins in early July. When the seed pods begin bursting, hundreds to thousands of small, black seeds spread over several yards. These seeds remain dormant for about 14 weeks before germinating in the early spring. Seeds can remain viable in the soil for five or more years.

Dead garlic mustard appears as long, slender seed stalks, with the seed pod turned upward.



Steven Katovich, USDA Forest Service, Bugwood.org



John M. Randall, The Nature Conservancy, Bugwood.org

In spring, the roots and new leaves smell like garlic.



Jody Shimp, Illinois Department of Natural Resources, Bugwood.org

The four-petal white flowers appear in April through June.



Robert Vidéki, Doronicum Kft., Bugwood.org

Because each plant disperses many seeds, garlic mustard can quickly colonize an area.

Impacts

Tannin in this plant makes it unpalatable, resulting in overbrowsing of native plants, which reduces biodiversity and their competitive ability to withstand garlic mustard invasions. Garlic mustard also produces chemicals that inhibit other plants allowing the invasive population to expand further.

Because each plant disperses a large number of seeds, garlic mustard can outcompete native vegetation for light, moisture, nutrients, soil and space as it quickly colonizes the area.

Control

For new infestations and small populations, hand pulling can be effective if done before seed dispersal. Another method is to cut the plant a few inches above the ground just after the flower stalks have elongated, but before the flowers have opened. If the plants have budded, they should be bagged and deposited in a landfill. If not completely removed, they will regenerate from any remaining parts and continue to produce seed. Repeat each year until the seed bank is exhausted.

A foliar spray of 2 percent glyphosate can be applied to individual plants in the fall or very early spring when most native plants are dormant. In low-quality areas when non-target vegetation is dormant, apply 2, 4-D or 2, 4-D plus Dicamba, which is selective for broadleaf plants.

Annual prescribed burns in spring or fall can help eliminate the plant.

Approval for garlic mustard biological control in the United States using weevils and flea beetles is in progress.

For Additional Information

www.mdc.mo.gov/nathis/exotic/vegman/eleven.htm

www.invasive.org/eastern/eppc/garlicmustard.html

www.invasive.org/eastern/biocontrol/29GarlicMustard.html

www.nps.gov/plants/alien/fact/alpe1.htm

plants.usda.gov/java/nameSearch?keywordquery=garlic+mustard&mode=comname



www.MissouriConservation.org

For more information or to report a population, contact your local Missouri Department of Conservation office, e-mail **WildlifeDivision@mdc.mo.gov**, or write:

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